THE ZONE SYSTEM SIMPLIFIED ? FORGET IT.

By Mike Scardino

I almost never get worked up over individual preferences in photographic technique. After all, there are almost as many ways to approach and solve a photographic problem as there are photographers. Didacticism has no place in any type of education, especially when the topic is as subjective as photography. Because I feel this way, I am always suspicious of "systemized" approaches to photographic technique. It goes without saying that any photographer who cares at all about his work wants it to be as good as he can possibly make it. Yet, technique should never take precedence over creativity or so confound the photographer that it interferes with his process of seeing images and recording them on film. It's easy to let technique become an end in itself. If you let that happen, just be sure it's what you really want from photography.

Thus, we come to the Zone System of exposure technique devised by Ansel Adams. This isn't intended to be a detailed explanation of his system—that is available through a multitude of sources. What Mr. Adams sought to do with this exposure system is give photographers a working knowledge of photographic sensitometry, by which they can consistently and accurately expose, develop and print photographs while taking greatest advantage of the tone-reproducing capability of the films, developers and papers at our disposal.

Well, the Zone System works very well for many photographers who have taken the time to learn and practice it. However, there are many photographers to whom the system as it is explained is nothing short of baffling. Testifying to this is the number of books tangential to the original Zone System, purporting to simplify it, make it more workable and so forth. Minor White, in his book *Zone System Manual* says of the Zone System: "In only a few weeks of earnest application, all are able to attain a mastery of photographic fundamentals such as is usually found only in professionals." Well, there are thousands of professionals out there, and some of them produce the most exquisitely exposed negatives and perfect prints you'd ever want to see—without spending time learning the Zone System. Most pros I know are far too busy working to 1. take the time to learn the system or 2. apply it even in the most approximate manner during an assignment. There is no doubt that the Zone System works. Yet, it takes an excessive amount of time to learn, and even more significant, it gobbles up time during shooting sessions. I submit that it is *not* a system for photographers who must proceed about their business with reasonable alacrity.

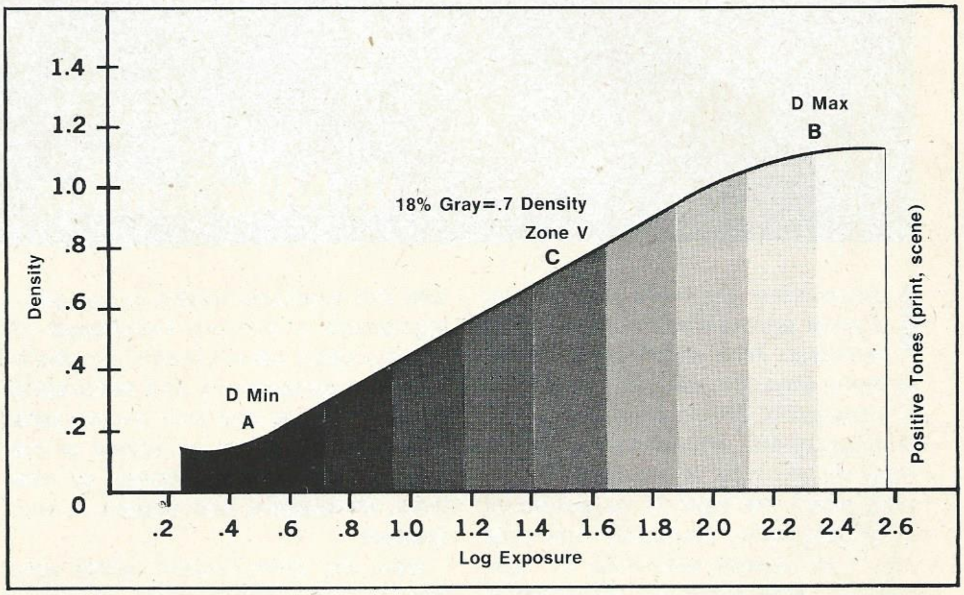
Why the burgeoning interest in this system? For one thing, it can give the student a very good working knowledge of the relationships existing among such photographic steps as exposure, tone rendition, development and printing. For another, people being what they are, many are reluctant to admit to themselves that very often simple systems work as well as complex ones. In other words, it just doesn't seem right that top quality work could be obtained simply and easily. That goes against the Western work ethic.

ZONE SYSTEM

There are two basic purposes for precise exposure control: first comes accuracy. When it is necessary to render as many of the original tones in the scene as accurately in the final print as possible, critical exposure measurement becomes highly important. The second purpose is creative control. The same photographer may be called on one day to produce a photograph of high accuracy and the next to render a subject in a decidedly nonliteral fashion. To be able to foresee, with a good deal of accuracy, the effect of your exposure on the photograph as you "previsualize" (Adams' term) the final print is a highly important skill, and one which may be said to represent the empirical side of creative control.

Basic to any goal of exposure is a knowledge of how film responds to light. Superficially, your goal in achieving high quality photographs is to preserve as much of the film's latitude as possible while going from subject to print. In practical terms, this might be represented by taking a tone equivalent in luminance (luminance is "brightness" as reflected from an object—brightness is the degree of illumination given off by a self-illuminated source, i.e., the sun) to an 18-percent gray card (Zone V), rendering it appropriately on the negative (as a density of .7—on which most "normal" development times of films are based) and ultimately rendering it in a print as the same 18 percent gray as in the original scene. It can be done quite easily. The Zone System wants, ideally, all negatives to be printable on grade No. 2 paper, with no manipulation of the dodging or burning-in variety. This requires that not only must the 18-percent gray card be rendered as truly as possible but that, hopefully, all the tones in the scene from the darkest to the lightest in which there is visible texture will be rendered accurately as well. Herein lies the primary difficulty facing all photographers: most films are capable of holding, at the most, a luminance range of about 250:1. In actual work, photographers often regularly encounter luminance ranges far exceeding that ratio and can record only a part of the original luminance range. The luminance range of the scene is even further compressed in printing because printing papers can accurately render a luminance range considerably smaller than films are capable of re-

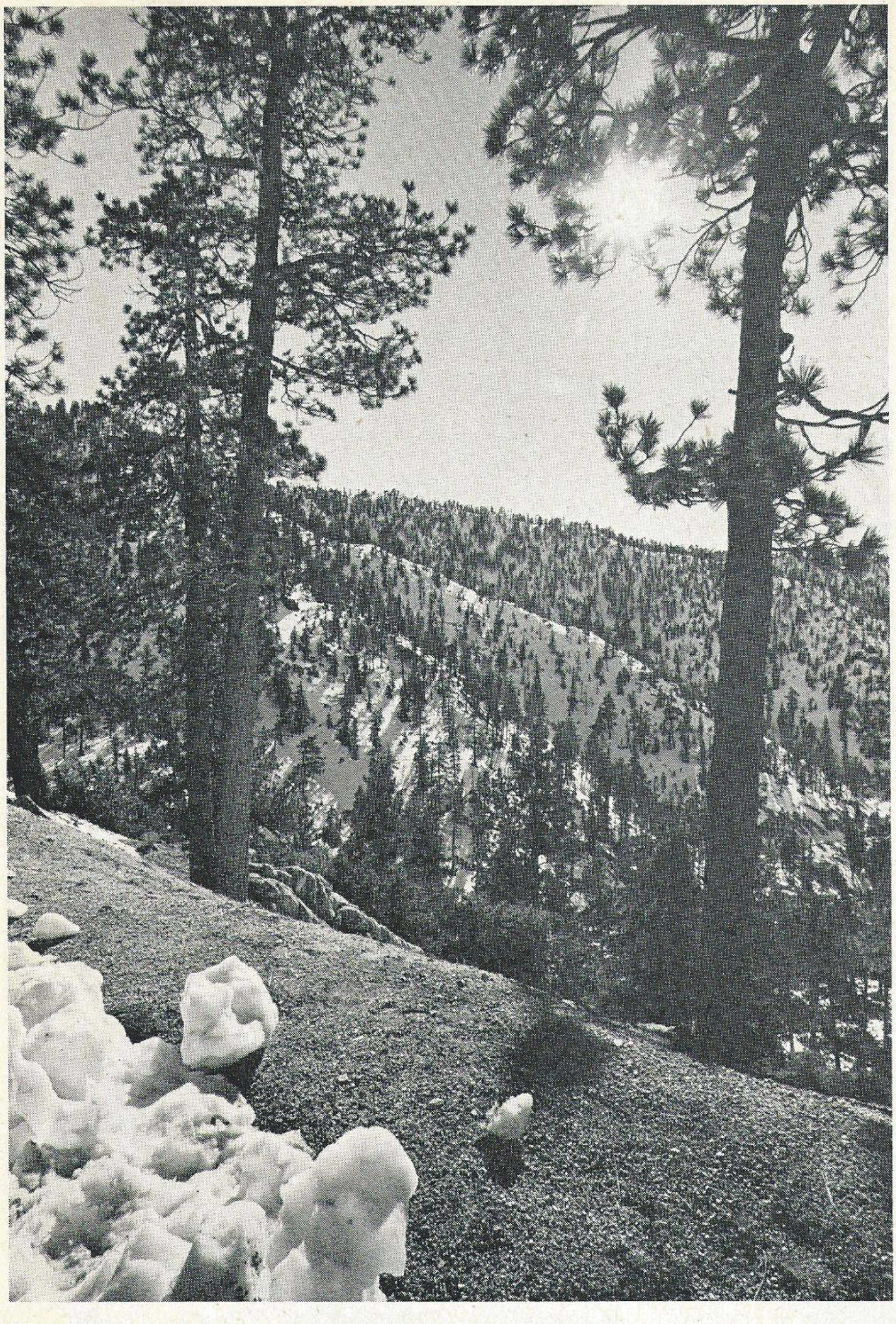
Scenes of this type are capable of being recorded with extremely high fidelity on most films because their luminance range falls easily within their latitude. Exposure measurement of this subject was extremely straightforward—a reflected light reading (from a gray card) and an incident light reading; both yielded the same exposure recommendation of 1 second at f/11 for Ilford Pan F Film, rated and processed "normally."



On the above chart, called a Characteristic Curve, "A" represents minimum negative density (base density plus fog density due to development), "B" represents maximum negative density (D max) and "C" represents a negative density of .7. Most manufacturers base their development recommendations on the production of an average density (found by computing the slope of the straight line portion of the curve) of .7. For most scenes, an exposure according to an 18-percent gray card, coupled with normal development, will yield a negative which accurately reproduces tones from base density to D max.

The ten-step gray scale below the curve represents positive (scene, print) densities. Maximum white and black are outside the depicted latitude. Since each step in the gray scale represents one f-stop change in exposure, the number of steps over and under the reading indicated by the 18-percent gray card, may be said to graphically represent the latitude of the film. In other words, if the highlights of a scene are such that they are more than four stops brighter than the indicated exposure, they will not be reproducible with normal exposure and development. The converse is true for the shadows.

To compensate for scenes with luminance ranges exceeding that of the film in use, exposure can be shifted up or down, according to whichever end of the tonal scale is more important to the photographer. In addition, development and exposure can be altered to "artificially" extend or compress the latitude of the film.



This subject matter presented a particularly critical exposure situation since not only is the luminance range very great (the sun exceeds the film's latitude by a wide margin), but the scene is backlighted as well. First, an exposure reading was made via incident light meter, with diffuser placed so that it received about equal exposure to the sun and shadow. The same result could be obtained by reading a gray card twice—once in the sunlight and once backlighted, then averaging the readings. Next, a reading was taken from the snow—the brightest area in the subject in which texture was necessary. Finally, a reading was taken (snow and shadow readings were by reflected light) from the tree trunk in the right foreground. A quick check revealed that the luminance range, with normal development and exposure according to the first reading, would be within the film's latitude so no special steps in development or exposure were taken. Ilford Pan F Film, 1/125 at f/8 second.

cording. Thus, the two most difficult exposure problems facing the photographer as a result of the limitations of his materials are 1. getting the most from the gradation of the film and paper combination as it is and 2. altering his exposure / development / printing techniques to fit exposure situations which are beyond the capability of the materials.

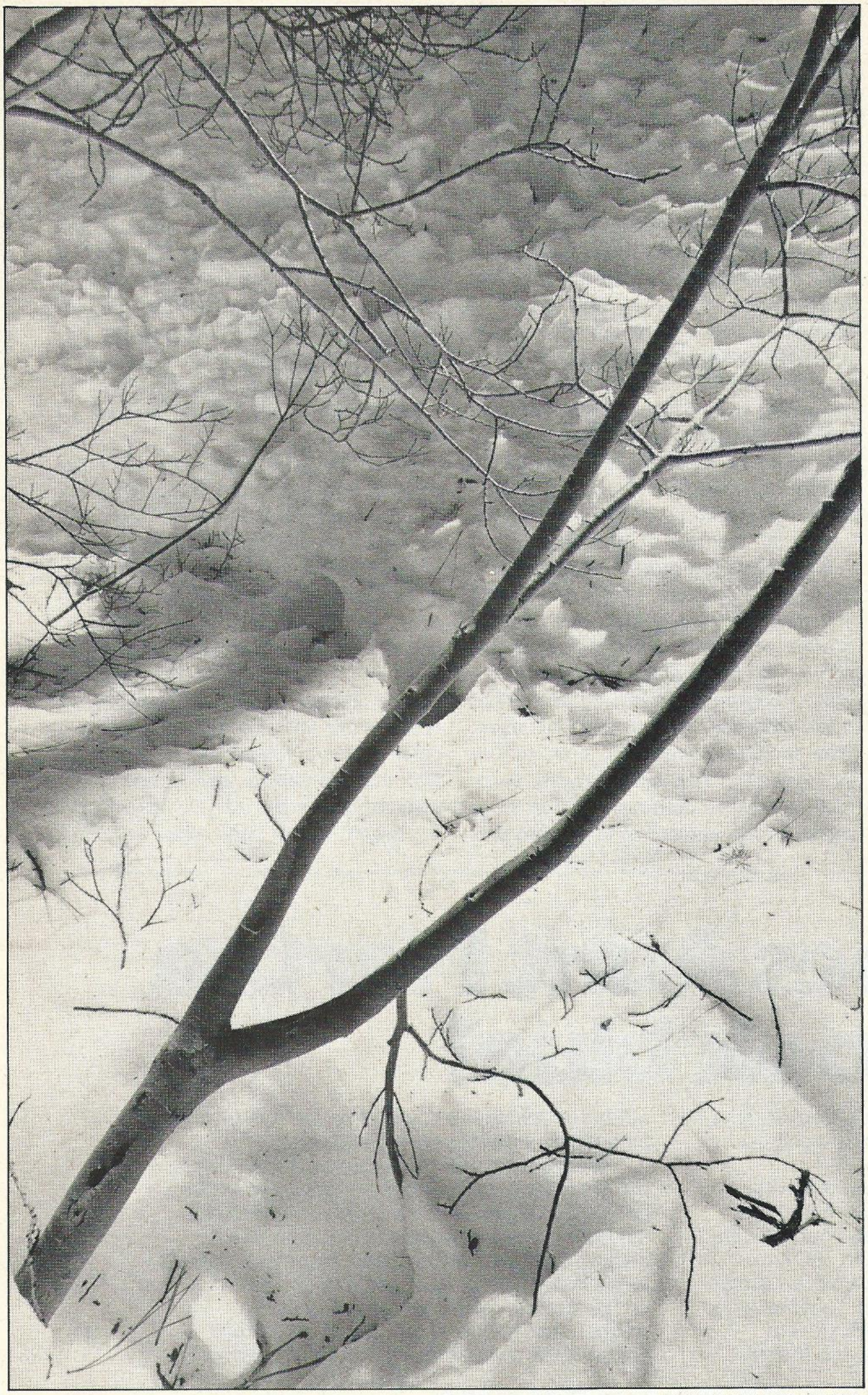
There are certain ways in which the luminance range (assuming it is beyond the latitude of the film and paper) of a subject can be reduced before processing. Oddly enough, one way is to choose subject matter and/ or lighting that is within the latitude of the film. A film's latitude is that portion of its characteristic curve which represents densities from relative black (D max) to nearly transparent, (threshold exposure) except for the light absorbed by the film base itself and what slight fog results from normal processing. This portion of the curve should be subtended by a 10-step gray scale, visually representing what the curve represents graphically. At the approximate middle of the gray scale is our representative 18-percent gray density. Each gradation over and under this tone represents a net increase or decrease in exposure equivalent to one f-stop. Therefore, in a hypothetical scene, if the highlight with the greatest luminance is no brighter than (see illustration) four f-stops away from the f-stop indicated by an exposure reading taken from the 18-percent gray tone, the film will be able to accurately record the scene from its greatest luminance to 18 percent gray. On the other end of the scale, if the darkest portions of the scene are no darker than three stops from the indicated exposure, they will be rendered accurately. So it makes excellent sense that when photographing subjects which your meter indicates are within your film's latitude, you can get outstanding exposures. Many of the finest photographs taken with the Zone System are of subjects such as shaded ground cover, with a luminance range easily handled by almost any film. Similarly, when the luminance range of the scene exceeds the latitude of the film, it is often possible to reduce it by proper filtration at the lens. In many cases, the judicious use of a filter will reduce certain tones in a scene—such as sky tones—to the point where they are within the latitude of the film.

The key to proper exposure is the proper use of the exposure meter. Given any normal situation, a reading from an 18-percent gray card or an incident light meter will yield a perfect exposure, period. Exceptions to this would be subjects with inherently high luminance ratios or back- or sidelighted subjects. It is in these cases that exposure must be critical to preserve as much of the original scene as possible or to allow the photographer (where the luminance range absolutely exceeds his film's latitude) to accurately shift his exposure in favor of the more significant portions of the scene.

For reflected light measurement, a spot meter offers the greatest degree of metering selectivity, but how many of us can afford a spot meter? To be sure, these devices do an excellent job, but there are others that can do just as good a job when properly used, and it isn't very difficult to learn to use your meter properly, no matter what type it is.

Proper use of the exposure meter depends on the lighting conditions and the subject—subjects with rather limited luminance ratios are easier to meter accurately than those with high luminance ratios. Let's take the easiest exposure situation first—a subject in open shade. To meter this subject absolutely correctly, simply use your reflected light meter or through-the-lens metering system and read a gray card placed in a position where it receives the same illumination as the subject. The resulting exposure, with recommended development, will give you a perfect negative; one that retains very high fidelity to the original scene. The same net reading could have been taken with a handheld meter set up for incident light measurement.

Another situation to consider would be when photographing a snow scene in which texture must be rendered in the snow and shadow detail preserved as well. This type of problem would require more thought but is still relatively simple to solve. First, take an incident light reading or one using the light reflected from an 18-percent gray card. This will give you your basic exposure—which would be all right for a scene with a normal (within the film's latitude) luminance ratio but not for this particular scene. Make a mental note of the "normal" exposure, and then meter the brightest highlight in the scene, *except* if this highlight is a specular highlight, such as the "hot spots" given off by glass, metals and water. Make another mental note of the highlight exposure reading, and then



ALL PHOTOS BY THE AUTHOR.

In this case, exposure was less critical than printing. With the same exposure on the negative, these two prints illustrate the importance of printing controls in producing a fine image. Here, two areas of the subject were of importance: the texture in the sunlit snow and the subtle tone of the light gray tree bark. Since the original exposure was dead accurate, natural rendition of the subject depended on printing flexibility. The first print was unmanipulated. The second received slightly less overall exposure and some burning-in of the snow in the foreground—but only enough to preserve texture, not so much as to give an unnatural appearance.

meter the darkest area of the scene in which you want some visible texture.

Compare the three readings with the latitude of the film—remember that each step in the gray scale represents one f-stop in exposure. If your highlight reading is greater than your film's latitude, you won't be able to record it properly with the "normal" exposure indicated by your meter. The converse is true if the shadows are darker. This calls on you, the photographer, to make a value judgement as to which areas are more important in the scene. Since you've done a meter reading of the highlight area, you know exactly how much brighter it is than the 18-percent gray card reading, and since you know that each step in the gray scale is one f-stop, you can calculate the number of f-stops adjustment you will have to make to render the detail you desire in the highlight area. If you decide to stop your lens down by one stop to adequately record your highlights, you must remember that this exposure change will cause your entire scale to shift—with the result that you will lose an equivalent (one stop) amount of shadow detail. The opposite is true at the other end of the scale. Keep in mind that this compensation is for negatives intended for "normal" (recommended) development that would render your 18-percent gray card as a .7 density in the negative. The above exposure procedure works in any situation where there is a wide luminance ratio and takes very little time to implement in practice. With it, all you need to keep in mind are your film's latitude, the type of development intended and which end of the scale—highlight or shadow—is more important to you if the luminance ratio in the scene exceeds the latitude of the film.

For the photographer who must include a greater luminance range in his photograph than would normally be possible considering the film's latitude, there are options available in development and printing.

I think that it's a dubious and somewhat arbitrary goal that all one's negatives should be printable on No. 2 paper. Besides being dubious and arbitrary, it removes some of the creative control a photographer has at his or her disposal, and that can't be good. On the other hand, I prefer to keep my development as constant as possible for reasons of quality control. Now, with sheet film and time on one's hands for experimentation, one can allow development to be the "wild card" of the exposure/development/

printing process by adhering to exposure and printing formularization and varying development to sort of fill in the gaps caused by inadequate materials. This can be done—individual development according to subject luminance ratio—with roll films as well as sheet films, provided all the exposures were done of the same or similar subject matter. Yet, where a wide variety of lighting situations is encountered or processing can't be done with personal supervision of the photographer, development for the individual photograph is out of the question—exit most of the professionals in the world. Why? Because many of them have their work done by labs due to time, locale and other factors of their particular job, and, therefore, exposures must be as accurate as possible because development is constant.

Just for argument's sake, though, let's say that you have done a whole roll of film of a subject with a very wide luminance ratio, wider than your film could handle normally, and you want to stretch its scale as much as possible. This can be done by shifting the scale to adequately record shadows, while reducing development to inhibit density buildup in the highlights. This is the "overexpose and underdevelop" ploy, and it works to a good extent. Conversely, to boost contrast—increase the luminance ratio—you can underexpose and overdevelop. One thing here is paramount: if you want to do this with any degree of precision, you should conduct some tests with your film/developer combination to see what net increase/decrease in exposure/development will give you a predictable, repeatable result on which you can depend. For example, if you know that extending your development time by 50 percent increases the density of an 18-percent gray card in the photograph by one f-stop (100 percent), you can count on a one-stop loss at the low end of the scale.

What about controls available during the printing process? There are plenty, including the use of different contrast grades of paper or variable contrast papers, prefogging for contrast reduction, dodging, burning-in and local print reduction and/or intensification. Why should adherence to one particular system of exposure deny a multitude of creative controls to the photographer in the interest of in-camera perfection? Even some of the most noteworthy advocates of the Zone System have been known to resort to dodging and burning-in occasionally or habitually. The point is, why take something as simple as exposure *can* be, if a minimal amount of time is taken to understand and practice it correctly, and turn it into something as complex and restrictive as the Zone System? It seems likely that the ultimate exposure "system" is logical exposure bracketing, and just as likely that, were a survey taken, that's just what the majority of professionals and amateurs do when a photographic situation is the least bit critical.

So for the scientists or neo-scientists among you out there who want it, there are as many complex "exposure systems" as you could desire and unlimited options for making up your own or exploiting someone else's. If, on the other hand, you're a bit of a perfectionist and wish to go from point "A" to point "B" with as much accuracy and as little lost motion as possible, try reading the little instruction book that came with your light meter. You may find that its simple advice and some common sense are all you need to get the results you've been after. □

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